

# Compact High Power 3D LiDAR System for (UAS) Unmanned Aircraft Systems, Phase II

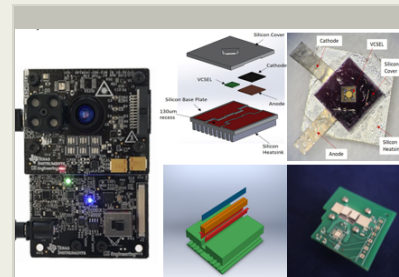
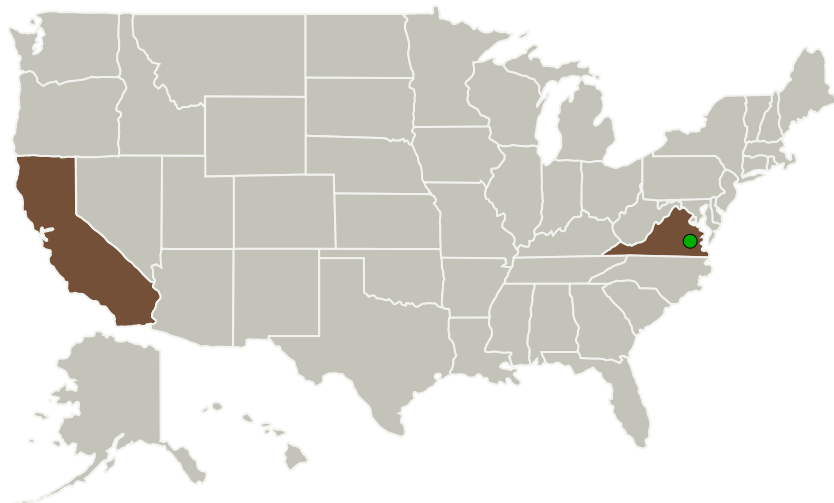
Completed Technology Project (2017 - 2019)



## Project Introduction

Eotron has introduced an improved illumination source for 3D IR Laser Time-of-Flight (ToF) systems based on its patented 3D silicon technology originally developed to improve efficiency and power of solid state lasers. Using proprietary design, fabrication and thermal management techniques, Eotron developed a highly efficient and compact silicon package / assembly for both IR VCSEL and Laser Diode illumination sources that can be modulated in high peak power & high frequency to increase the range and resolution of a 3D IR LiDAR system. Eotron's 3D LiDAR system overcomes the limiting factors found in complex laser based systems while operating at less power consumption due to improved thermal management and a more efficient frequency driving method. In addition to these advantages, the 3D LiDAR system can reduce system size and weight by over 50%, while also lowering cost of manufacturing. Our system is ideal for applications requiring 3D long range, high resolution real time imaging in a light-weight and compact package.

## Primary U.S. Work Locations and Key Partners



Compact High Power 3D LiDAR System for (UAS) Unmanned Aircraft Systems, Phase II Briefing Chart Image

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

## Compact High Power 3D LiDAR System for (UAS) Unmanned Aircraft Systems, Phase II

Completed Technology Project (2017 - 2019)



Organizations Performing Work	Role	Type	Location
Eotron, LLC	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Oceanside, California
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

## Primary U.S. Work Locations

California	Virginia
------------	----------

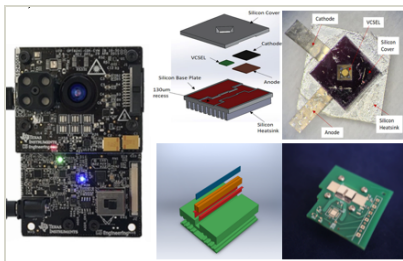
## Project Transitions

**May 2017:** Project Start**December 2019:** Closed out

## Closeout Documentation:

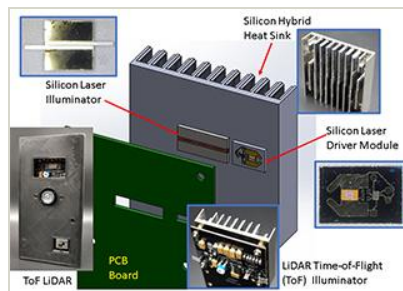
- Final Summary Chart(<https://techport.nasa.gov/file/141129>)

## Images



## Briefing Chart Image

Compact High Power 3D LiDAR System for (UAS) Unmanned Aircraft Systems, Phase II Briefing Chart Image  
(<https://techport.nasa.gov/image/135340>)



## Final Summary Chart Image

Compact High Power 3D LiDAR System for (UAS) Unmanned Aircraft Systems, Phase II  
(<https://techport.nasa.gov/image/131508>)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Organization:

Eotron, LLC

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

## Program Director:

Jason L Kessler

## Program Manager:

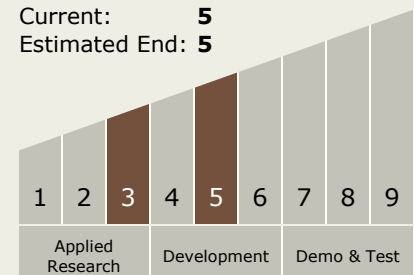
Carlos Torrez

## Principal Investigator:

Gerald H Kim

## Technology Maturity (TRL)

Start: 3  
Current: 5  
Estimated End: 5



# Compact High Power 3D LiDAR System for (UAS) Unmanned Aircraft Systems, Phase II

Completed Technology Project (2017 - 2019)



## Technology Areas

### Primary:

- TX02 Flight Computing and Avionics
  - └ TX02.2 Avionics Systems and Subsystems
    - └ TX02.2.2 Aircraft Avionics Systems

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System